

In Reply Refer to 6840-P

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Subject: Biological Assessment (BA) for bull trout for 1998 ongoing actions on the Prineville District, Bureau of Land Management (BLM) in the North Fork John Day River subbasin.

Dear Diana:

Enclosed is the Final BA for bull trout for 1998 ongoing actions on the Prineville District, Bureau of Land Management (BLM) in the North Fork John Day River subbasin. Your May 25, 1998 FAX comments on the draft bull trout BA have been addressed in this document. Additional information requested by your agency has been added/clarified, and the BA format is now standardized to comply with the U. S. FWS Framework document (Making ESA Determinations of Effect of Grouped Actions on bull trout).

Also enclosed is an updated Checklist for documenting Environmental Baseline and Effects of Proposed Actions(s) on Relevant Indicators, and a List of Ongoing Range Management Actions (Table 1). Assessment of Environmental Baseline and Effects of the Actions were determined using information from 1995 water quality monitoring studies, ocular riparian assessments, 1996 riparian photo point surveys, 1998 compliance monitoring work, and professional judgement.

We appreciate the time you spent in the field with us on October 13 and 14 touring the ongoing actions/projects. This was a very beneficial exercise to discuss the issues on site, to evaluate the success of our riparian management, and also to discuss possible solutions to evident problems that are limiting recovery of habitat potential. If you have any further questions or need of additional information/ clarification, please contact Gary Torretta, fisheries biologist, at (541) 416-6763, or myself at (541) 416-6731. We would appreciate a letter of concurrence/biological opinion with the level 1 team findings from the U.S. Fish and Wildlife Service at your convenience.

Sincerely,

Harry R. Cosgriffe
Area Manager, Central Oregon R.A.

Enclosures: Biological Assessment
Ongoing Project List
Environmental Baseline Checklist

**Final
Biological Assessment
for Bull Trout and its Habitat
in the North Fork John Day
River Subbasin**

**Bureau of Land Management
1998-2002 Ongoing Actions,
Prineville District**

Pre-June 1999

Final Biological Assessment (BA) for bull trout for 1998-2002 ongoing actions on the Prineville District, Bureau of Land Management (BLM) in the North Fork John Day subbasin.

Introduction

Within the North Fork John Day River (NFJDR) subbasin, the BLM Prineville District manages about 8,640 acres of scattered and moderately blocked public lands which drain into, or encompass bull trout migratory habitat (winter). About 200 BLM managed acres are proposed for exchange/disposal in the Northeast Oregon Assembled Land Exchange (NOALE). Refer to Table 2 and previously submitted map depicting which parcels in specific allotments are proposed for disposal/exchange. The BLM has already received a bull trout consultation concurrence letter from your agency for the NOALE project. About 7,400 BLM-managed acres are within eleven permitted grazing allotments. The remaining 1,240 BLM-managed acres are unleased, with no authorized grazing use.

The BLM is requesting consultation on these ongoing permitted actions. These action are consistent with our governing programmatic plans. Riparian habitat management concerns in these allotments have been identified and are addressed in the John Day Resource Management Plan. Two management objectives are (1) "management activities in riparian zones will be designed to maintain, or when possible, improve riparian habitat condition", and (2) "either eliminate hot season grazing...or schedule {it} on a rotational basis". These objectives should be accomplished through the adjusted grazing plans analyzed in this B.A. The BLM will provide full documentation of baseline and rationale for baseline/effects "checklist" to the lead Level 1 team for 4th field HUC B.A.'s.

Environmental Baseline Description

The bull trout analysis area for this BA includes all lands draining into the NFJDR from the mouth of Wall Creek (RM 22.5) to the Prineville BLM District boundary at the Grant/Umatilla County line (RM 51.5). Within the analysis area, bull trout only occupy habitat in the NFJDR proper. The analysis area totals approximately 72,000 acres, with BLM lands comprising about 12 percent of this area (8,640 acres). For analysis

purposes, assessment of the baseline pathways were determined from informal field observations of BLM and private lands along the North Fork John Day River and tributaries, excluding the uplands on National Forest lands. The BLM lands are scattered within six 5th field Hydrologic Units (#17070202-02,04,06,07,08, and 09). Because BLM manages only minor land acreage within each 5th field HUC, it is not practical or meaningful to prepare specific assessments for each Unit.

Salmonid habitat has decreased in both quantity and quality in the analysis area in recent history due to increased human activities and some natural events. Land uses such as timber harvesting, road construction, livestock grazing, placer mining, agriculture practices (irrigation water diversions, and encroachment on riparian zones), and stream channelization have impacted salmonid habitat in the Middle Fork John Day River. Natural events such as insect infestations and epidemics, large catastrophic forest fires, and basin wide and localized flooding have further contributed to the degradation of riparian and instream habitats. It is difficult to estimate how land management practices may have exacerbated the severity and intensity of natural events impacting riparian habitat conditions.

Improperly managed livestock grazing, timber harvesting, and road building activities have impacted fish habitat by damaging or suppressing riparian vegetation, impacting water quality, reducing habitat complexity, and destabilizing streambanks and watersheds (John Day River Subbasin Report, 1990). Irrigated agriculture activities are insignificant within the analysis area, with range and forestry being the principle land uses. According to the Oregon Water Resources Department (OWRD, 1986), land uses in the last 125 years may have had a significant impact on the John Day basin's capacity to retain water and release it later in the season.

Logging practices throughout the John Day Basin have degraded water quality in streams and caused both direct and indirect impacts to fish and aquatic resources. The following is a list of fishery related impacts that have resulted from logging activities (John Day River Subbasin Report, 1990).

1. Impaired water quality from increased sedimentation and water temperatures, and lowered dissolved oxygen levels.
2. Direct stream habitat losses resulting from instream channel changes and loss or lack of large woody materials.
3. Removal of riparian vegetation canopy resulting in reduction of instream food production and increased stream temperatures.

Timber harvesting within riparian zones on private lands has been more extensive than on the BLM managed lands. Forested BLM tracts in the analysis area have had limited timber management activities and still contain a good mix of large overstory trees.

From RM 51.3 to RM 38.5 (mouth of Potamus Creek), the river canyon has moderate to patchy stands of ponderosa pine and Douglas fir. Canyon slopes on the south side of the river (north facing) contain the most dense timber stands. Hawthorne, elderberry, coyote willow, black cottonwood, Rocky Mountain maple, ninebark, snowberry, and western juniper are understory shrubs and trees found scattered and clumped in riparian zones. Exotic weeds are also scattered along the river, particularly in disturbed areas (old slash burn piles, and areas where livestock grazing has been concentrated too heavily). Cobble/gravel bars and bedrock substrate areas are common in the NFJDR floodplain. From RM 38.5 to the RM 22.5 the conifer overstory and diversity of riparian shrubs continues to decrease as western juniper and other arid vegetation increases. Cobble/gravel bars and bedrock substrate areas are still common. Riparian vegetation along tributary streams generally is more diverse and dense than along the NFJDR. Potential riparian communities in the North Fork drainage are largely determined by topography, elevation, and aspect. Upper riparian habitats with shady northerly and easterly aspects, which are less prone to drying, are more densely vegetated with greater species diversity of shrubs and sedges. These habitats exhibit high potential for rapid recovery from disturbance. In more arid locations, particularly the lower part of the analysis area, ground cover is naturally more sparse and streambanks have been impacted more from livestock grazing. These communities also have high potential for recovery, but at a slower rate than less arid areas.

A 1995 Properly Functioning Condition (PFC) assessment of BLM riparian/stream habitats identified the North Fork John Day River, and Graves, Mallory, and Potamus Creeks as Functioning-at-Risk (FR). The potential acquisition tributaries are also estimated to be Functioning-at-Risk.

The lower NFJDR is known to carry significant ice flows during most winters. These hydrological events contribute to degraded riparian zones and streambank instability (OWRD, 1986). Land use practices and watershed conditions may lead to ice scouring. Ice flow scars are commonly seen on pine trees adjacent to the river.

Mining historically was an important economic activity in the NFJDR subbasin. Gold continues to be mined from placer and small bedrock mines in the upper NFJDR. Exploration activities continue mainly on previously known gold and silver deposits on Granite Creek and the headwaters of the NFJDR (OWRD, 1986). Mining activities and disturbances were primarily upstream of the analysis area.

Bull Trout Subpopulation Characteristics/Species Distribution

According to Buchanan (1997), and ODFW biologists, migrating bull trout use the NFJDR in the analysis area down to the mouth of Wall Creek (RM 22.5) during winter season when water temperatures are suitable. Bull trout "occupied" habitat includes spawning, rearing, or resident adult, and migratory winter habitat. BLM managed lands within six grazing allotments are adjacent to bull trout winter migratory habitat. The North Fork John Day River currently supports spawning and rearing habitat upstream of the analysis area in Clear, Crane, Desolation, S. Fk. Desolation, Big, Baldy, S. Fk. Trail and Winom Creeks, and in the N. Fork John Day above Gutridge. Historic habitat included Granite Creek, N. Fk. Desolation Creek and Meadow Brook Creek. The upper North Fork contains the most bull trout habitat in the John Day Basin (Claire and Gray, 1993).

Water Quality

The NFJDR subbasin has the best chemical, physical, and biological water quality in the John Day basin. Water quality problems do occur in localized areas. Water quality is adequate for most beneficial uses. Elevated water temperatures and sedimentation do impair uses by cold water fishes however. Elevated water temperatures occur during low flows and sedimentation and erosion occur during high flows. Stream reaches like upper Big Wall Creek exhibit elevated temperatures, low dissolved oxygen, low flows, siltation, and bank erosion. These conditions can be partially attributed to grazing, channelization, logging practices, road construction, ice flows, and irrigation withdrawals (OWRD, 1986). Tributaries of the NFJDR have better shading and denser tree and shrub components than the main river. In 1995, water quality data was collected at RM 38.2 on the NFJDR. The 7-day average maximum daily temperatures for the site was 26.9 C at RM 45 starting the week of July 23.

Habitat Access

There are no known physical barriers to bull trout migration in the mainstem NFJDR.

Habitat Elements

No quantitative data has been collected on substrate embeddedness in the area. Rough estimates from a 1996 riparian photo point survey indicate that embeddedness is within 20-30%. Large instream wood is rare in the NFJDR, and throughout the analysis area. Ditch Creek had the most instream wood of all the tributaries in 1996. Pool frequencies and quality in the NFJDR are likely functioning appropriately, but tributaries have considerably lower pool frequencies than desired. Pools in the NFJDR generally are large and deep (>1 meter), but tributaries have few large and deep pools. The NFJDR has some off channel habitat areas and limited amounts of habitat refugia.

Channel Condition/Dynamics

No data is available on Wetted Width/Maximum Depth Ratios for the NFJDR or its tributaries. Based on informal observations, streambank conditions generally have 90 percent stability over 50-80 percent of any stream reach (Functioning at Risk).

Streambank stability is primarily provided from rock, grasses, scattered deciduous shrubs and trees and pine trees. Off channel areas are probably frequently hydrologically linked to main channels in the NFJDR, based on informal observations.

Flow/Hydrology

The NFJDR is the most important subbasin in terms of water quality and flow contribution to the John Day River, contributing over 60 percent of the annual average discharge of the basin. Some tributaries in the analysis area (Stony, Ditch, and Mallory) are known to experience interrupted surface flows during dry years. Problems of the North Fork subbasin are high volumes of runoff, low summer streamflows, and localized degraded water quality. Seasonal streamflows are unevenly distributed throughout the year. Some erosion and sedimentation problems occur in localized areas. Periodic high flows carry sediment and increase turbidity, affecting water quality and fish habitat (OWRD, 1986).

Historic and current land use activities have altered the analysis area drainage. Mining, specifically dredging, has modified stream channels and riparian vegetation upstream of the analysis area. Timber harvest, road construction and livestock grazing may contribute to the uneven distribution of subbasin discharge (OWRD, 1986). Low to moderate increases in active channel length have probably occurred in the area due to human caused disturbances, but availability of data to substantiate this is unknown.

Watershed Conditions

There are many valley bottom roads, but road densities range from 1-2.4 miles/mi². The BLM does not administer or maintain any roads within the analysis area. All roads are either gravel or native material surfaced. Most of this analysis area is non-forested, but riparian areas have had timber harvesting that has impacted habitat conditions. The level of disturbance history on private lands is largely unknown, however some marginal forest lands in the Ditch and Wall Creek drainages on private lands have been extensively harvested. Forested areas are concentrated upstream of Potamus Creek on the south canyon slopes of the NFJDR, and have been harvested moderately. Most forested BLM tracts have not had any significant timber harvest. It is estimated that riparian conservation areas (RHCA's) have experienced moderate to high losses of connectivity or function, particularly on the lower NFJDR below Potamus Creek. Presently the riparian vegetation component along the NFJDR probably does not contribute largely to stream function. Conditions of RHCA's on tributary habitats is generally better however. BLM parcels on the NFJDR and tributaries generally have a well intact overstory component of conifers, and varying conditions of understory shrub and tree species. Riparian areas are estimated to be >50% in similarity to natural community composition. Because the area is arid, resiliency of habitat to recover from environmental disturbances is moderate to low. Most scour events are localized.

Integration of Species and Habitat Conditions

Bull trout spawning habitats in the NFJDR drainage (upstream of the analysis area) are concentrated in the upper tributaries and Desolation Creek. According to ODFW these populations are at "Moderate Risk" of extinction. Cumulative disruption of habitat from mining, timber harvesting, road building, and grazing, past opportunities for sport fishing overharvest, poaching, and hybridization and competition with brook trout has resulted in a declining trend in the subpopulation size. Winter migratory habitat connects these spawning stream reaches and connectivity is likely during spawning season (See species distribution map).

Project Descriptions

Livestock Grazing Allotments

The major action being addressed by this BA is livestock grazing in the NFJDR subbasin on eleven allotments shown in Table 1. Historically most BLM grazing allotments in this area were permitted for season long use (4/1-11/30). Starting in 1998 grazing season, the permitted season of use has been restricted on all BLM parcels that contain occupied bull trout habitat and fish bearing or perennial non fish-bearing streams that drain into occupied bull trout habitat. The new permitted season of use is 4/1-5/31.

Livestock operators have been contacted and informed that they are responsible for keeping livestock off these parcels after the turn off date, for some of these public land parcels are not fenced separately from surrounding private lands. BLM expects that operators make a reasonable effort to have a majority of the livestock (95-98%) removed by the turn off date. Total removal by this date is desirable but varying circumstances (large pastures, steep topography, rogue animals, and equipment failures) sometimes thwart the best efforts to complete the removal process. BLM expects operators to gather straggler animals for total removal within a week after the turn off date. Because portions of livestock herds would actually be removed before the turn off date, this evens out use that may occur from stragglers afterward. Livestock found on BLM lands after this grace period would be considered unauthorized, and appropriate actions will be taken to protect public land resources. Trailing across these parcels outside of the authorized grazing season will only be allowed by a special use permit, and granted on a case by case basis.

Because BLM parcels in these allotments are relatively small and contain similar habitat for bull trout, all are being grouped into one BA for the NFJDR subbasin. Each allotment is shown on a previously submitted map and listed in Table 1, with allotment specific information. Allotment Plans have been written and implemented for the larger grazing allotments (Slicker Mtn., Neal Butte and North Fork) with BLM lands adjacent to the NFJDR. Through these plans, grazing seasons were restricted to spring use only (4/1-5/31) in pastures with BLM river and stream habitat.

Some monitoring data has been collected within the analysis area, but limited riparian information specific to the public lands within these allotments. Riparian trend studies (photo points) were established in 1996 on the NFJDR and the lower reaches of its tributaries. Riparian photo points were taken at 1/4 mile intervals on the NFJDR from RM 22.5 to RM 57.5, on Deerhorn Creek from RM 0.0 to 4.6, on Jericho Creek from RM 0.0 to 3.9, on Stony Creek from RM 0.0 to 3.6, on Rush Creek from RM 0.0 to 0.8, on Potamus Creek from RM 0.0 to 1.6, on Graves Creek from RM 0.0 to 2.1, on Ditch Creek from RM 0.0 to 2.2, and on Cabin Creek from RM 0.0 to 2.5. As noted in this riparian photo point study, grazing was heavy in various reaches on the North Fork and tributaries in 1996, on both private and public lands, mostly upstream of the analysis area. In 1997, season of use changes were implemented on two larger allotments (North Fork and Neal Butte).

About every 1-2 weeks after the turn off date, the grazing allotments will be monitored for unauthorized use, through the month of October. Efforts will be prioritized on those allotments that are adjacent to occupied bull trout habitat on the NFJDR, which contain the majority of fish bearing stream habitat, and have the best access (#4003, 4028, 4029, 4042, 4122, 4125). Unleased BLM parcels adjacent to migratory habitat will also be monitored. Regular grazing compliance monitoring has occurred on the Slicear, North Fork, and Neal Butte allotments since grazing seasons were shortened to spring use grazing in 1995-1997. The Big Bend and Johnny Cake Mountain allotments also have been monitored, as they are adjacent to the previously discussed allotments.

The BLM believes there is good potential for a high rate of grazing season compliance on NFJDR allotments, particularly since several larger allotments (#4028, #4029, and #4003) already were changed to spring use prior to the proposed listing of the bull trout. Some instances of unauthorized grazing have occurred on the Neal Butte and Slicear allotments in 1997 and 1998. The livestock owners were notified and the situations were corrected quickly. Two problem areas have been identified where livestock have been drifting down from other private lands onto the NFJDR public lands, particularly during late summer and fall months. They are the Cabin Creek drainage and the lower Middle Fork John Day River. Concentrated compliance monitoring by BLM staff and new drift fences to control livestock will increase the success of these new grazing seasons on bull trout habitat. BLM will pursue funding and NEPA requirements to construct the Cabin Creek fence in 1999, and investigate how to control livestock drift coming down the Middle Fork.

Dispersed Recreation

Also analyzed in this BA is commercial river guiding and dispersed public camping on the NFJDR in the analysis area. At present, 34 commercial river guides are permitted by the BLM on all segments of the John Day River. In 1997, two of these commercial outfitters reported that they guided float trips (one trip each) on the NFJDR. This use accounted for approximately 48 visitor user days. A visitor user day is one person

recreating on public or private lands for any portion of a day. In 1997, both trips occurred in late May after the trout fishing season opened. The principal activity occurring on these guided float trips was canoeing, fishing and sightseeing

The NFJDR normally is open to steelhead angling from September 1 to April 15 each season, and open to trout angling from late May to October 31 each year. Retaining bull trout as part of daily trout limits has been prohibited since 1993. According to ODFW biologists, no known incidental catch of bull trout is occurring in the analysis area after trout season opens. Known incidental catches of bull trout in the analysis area have occurred during the winter months (December to February) when steelhead angling is legal.

Within the analysis area, the BLM manages about 11 miles of river corridor on the NFJDR (occupied migratory bull trout habitat). A public access easement along the soil road north of the river from highway 395 (RM 56.8) to Potamus Creek (RM 38.6) allows sportsmen opportunity to fish the NFJDR on Pioneer Resources lands (formerly Louisiana Pacific). Public land parcels below Potamus Creek generally are accessible by the public, although the access road is privately controlled. During hunting season access is blocked by locked gates between RM 30.1 to RM 36.5 through a private ranch. Dispersed camping use is heaviest during peak rafting months (April-June) and hunting season (Sept-Oct). Rafters/floaters generally camp on river bank left, while hunters and other campers use river bank right, next to the road.

Description and Distribution of Species

Inventories and Surveys

Until recently little specific information on the status or biology of bull trout in Oregon was available. During the past decade there has been a concerted effort to find out more about the bull trout. Since 1990, ODFW, Forest Service (FS), and BLM stream survey crews have been documenting bull trout distribution and relative abundance. Bull trout distributions discussed in this analysis are referenced from the latest information from ODFW, BLM, and Forest Service fisheries biologists.

Life History of Bull Trout

Bull trout typically have more specific habitat requirements than other salmonids. Because of their specific requirements, bull trout are more sensitive to changes in habitat and less able to persist and thrive when habitat conditions are altered or degraded (Rothschild and DiNardo, 1987). Channel and hydrologic stability, substrate, cover, temperature, and the presence of migration corridors consistently appear to influence bull trout distribution or abundance (Ziller, 1992).

Adults usually spawn from August through November in the coldest headwater tributaries of a river system, and require water temperatures <10C for spawning, incubation, and rearing (Weaver and White 1985). Although migratory bull trout (fluvial or adfluvial) may use much of a river basin through their life cycle, rearing and resident fish often live only in smaller watersheds or their tributaries (second-fourth order streams) (Ziller, 1992).

Juvenile bull trout closely associate with stream channel substrates, often using interstitial spaces for cover (Fraley and Shepard 1989). A close association with channel substrates appears more important for bull trout than for other species. This specific rearing habitat requirement suggests that highly variable stream flows, bed movements, and channel instability will influence the survival of young bull trout, especially since embryos and alevins incubate in substrate during winter and spring (Reiman and McIntyre 1993).

Increases in fine sediments to streams can reduce pool depths, alter substrate composition, reduce interstitial space, and cause channels to braid. These changes degrade fish habitat and reduce rearing bull trout survival and abundance (Reiman and McIntyre 1993). Bull trout usually associate with complex forms of cover and with pools. Juveniles live close to instream wood, substrate, or undercut banks and in pocket pools formed by boulders. Young-of-the-year fish use side channels, stream margins, and other low velocity areas. Older and larger fish use pools and areas with large or complex instream wood and undercut banks (Reiman and McIntyre 1993). Instream wood correlated significantly with bull trout densities in streams sampled in the Bitterroot National Forest (Reiman and McIntyre 1993).

Migratory corridors connect safe wintering areas to summering or foraging areas. Movement is important to the persistence and interactions of local populations within the metapopulation. Open corridors among populations are required to ensure gene flow, refounding of locally extinct populations, and enhancement of locally weak populations. Migratory populations of fish are likely to stray more between streams than resident populations, increasing the potential for such dispersal (Reiman and McIntyre 1993).

Water temperature is the most critical factor that influences bull trout distributions, but critical thresholds however, are poorly defined. Water temperatures in excess of 15C are thought to limit bull trout distribution (Fraley and Shepard 1989). It is not known whether the influence of water temperature is consistent throughout the life cycle or whether a particular stage is especially sensitive. Increasing water temperatures increase the risks of habitat invasion by other species that may displace bull trout.

Bull trout have very low levels of variation within populations (John Day, Umatilla, Grande Ronde Basins, etc) but are highly differentiated between populations (Spruell

and Allendorf 1997). The John Day and Grande Ronde bull trout populations tend to be similar genetically, however a unique allele frequency was found in seven of ten John Day populations which was not present in any of the 11 Grande Ronde populations (Spruell and Allendorf 1997).

Bull Trout Distribution in the North Fork John Day Hydrologic Unit

Bull trout are indigenous to the John Day River Basin and historically had a wider distribution within the Basin than at present. Modern land-use practices in the John Day Basin have altered aquatic habitats where salmonid fishes live, including the bull trout. The current distribution of bull trout is clearly fragmented (Howell and Buchanan 1992). Bull trout in the John Day Basin are considered as one metapopulation, even though the sub-populations within the main stem, North and Middle Fork subbasins probably have no genetic interchange presently (Unterwegner, personal comm. 1997).

Presently bull trout spawning and rearing habitat in the North John Day Basin includes Clear, Crane, Desolation, S. Fork Desolation, Big, Baldy, Trail, Crayfish, Cunningham, Onion, and Boulder Creeks and the NFJDR above Gutridge

Migratory bull trout habitat in the NFJDR extends down the river to the mouth of Wall Creek (RM 22.5), and also includes lower Desolation Creek.

Bull trout distributions within the Basin have been affected by an array of human caused factors. These factors are the primary reasons for the decline of local populations (Claire and Gray, 1993; Ratliffe and Howell, 1992).

Habitat Degradation

- Water temperature impacts (elevated temperatures).
- Riparian habitat loss
- Loss of instream structure and complexity
- Loss of instream large wood and potential future large wood
- Increased sediment delivery to bull trout habitats
- Food supply (reduction in anadromous fish populations)

Passage Barriers

- Natural barriers. Falls on S. Fork Desolation, E. Meadowbrook, and Big Creeks

Overharvest/Poaching

very susceptible to angling. Legal harvest has been higher in the North Fork drainage than the Middle Fork or Upper Mainstem. In 1993 ODFW prohibited angling harvest of bull trout in the John Day Basin.

Hybridization and Competition

-Brook x bull trout hybrids have been found in S. Fork Desolation and Crane Creeks. Other streams containing brook and bull trout, with potential for hybridization, are Desolation, Baldy, Big and Winom Creeks, and the upper NFJDR..

Climate Change

-Oregon is near the southern fringe of bull trout distribution. Only an isolated population in the upper Jarbridge River in Nevada occurs further south (Ratliff and Howell 1992). Bull trout may be a remnant of preglacial cold water fish fauna (McPhail and Lindsey 1986), and reductions of bull trout in the southern edges of its range has been caused at least in part by the loss of cold water habitat following the retreat of glaciers and snowfields since the late Pleistocene (Cavender 1978). This situation has been aggravated by human-caused habitat alterations.

Analysis of Potential Effects of the Proposed Actions

Grazing

Habitat for bull trout (migratory) on BLM managed lands will be maintained through time by restricting grazing activities along NFJDR and tributary streams to early season use only (4/1-5/31). With spring use only grazing in pastures with perennial streams, livestock leave the riparian areas early when enough soil moisture remains in the riparian zone for nearly complete herbaceous vegetation regrowth. Herbaceous and woody vegetation along streams functions to protect streambanks from high flow scour, and also to catch and deposit sediments carried in high flow events. Little use occurs on riparian woody species, as more palatable grasses and forbs are abundant on uplands and bottomland areas. Perennial stream segments (13.3 total miles on BLM) in these allotments range from 0.2 to 1.8 miles in length. The BLM has seen excellent riparian responses to this grazing strategy on the South Fork John Day River in the past ten years.

If unauthorized grazing use were to occur (outside of permitted grazing season) on BLM lands adjacent to occupied bull trout habitat, this would trigger the BLM to re-initiate consultation with the Service if the environmental baseline (occupied habitat along the NFJDR) is altered enough to adversely affect the species.

Improper livestock grazing can hinder the potential maturation of woody species and decrease herbaceous stubble heights. This can affect the riparian environment by changing, reducing, or eliminating vegetation, and by actually eliminating riparian areas through channel widening, channel aggrading or lowering of the water table. Riparian zones are often grazed more heavily than upland zones because they have flatter terrain, water, shade, and more succulent vegetation (Platts, 1991). Streams modified by improper livestock grazing are wider and shallower than they would have been normally. Generally, in grazed areas, stream channels contain more fine sediment, streambanks are more unstable, banks are less undercut, and summer water temperatures are higher than is the case for streams in ungrazed areas (Armour 1977; Behnke and Zarn 1976).

Based on Level 1 team discussions, the permitted grazing actions on allotments adjacent to occupied habitat (#4003, 4028, 4029, 4042, 4122, and 4125) is considered Not Likely to Adversely Affect the species. Intermingled and surrounding private lands within these allotments, and unknown level of compliance to adjusted grazing season restrictions raises the need for consistent compliance monitoring of the public lands. Two allotments were determined to have no effect to downstream bull trout habitats (See Table 1). These allotments are upland, 40 acre parcels, with no perennial or intermittent streams.

Dispersed Recreation/Camping

A public access easement from highway 395 Potamus Creek (soil road north of the river) allows public opportunity to fish the NFJDR on Pioneer Resources lands (formerly Louisiana Pacific). BLM managed lands next to the NFJDR are intermingled with private lands. Because the public can recreate on private timberlands along the river, there is not a predisposition to concentrate use on the scattered BLM lands that access the river from the road.

In the riparian zone, recreational activities may alter habitat elements important to salmonid populations. Recreational use of the riparian zone does not always greatly disrupt fish habitat, however. Understory vegetation in the riparian area can be reduced or removed when recreational activities occur along the banks of streams and rivers, depending on the intensity and type of activity. Loss of understory vegetation directly affects the rearing habitat of fish by reducing hiding cover, food production, and streambank stability. How quickly streambank loss occurs and how much of the stream will be affected depends on the type of recreational activity taking place and its frequency (Clark and Gibbons, 1991).

Camping in riparian areas and near streambanks can cause accelerated bank erosion from trampling and vegetation removal, loss of large wood due to removal for firewood, and harassment of game fish species. However due to the remote location of

the analysis area, and low levels of dispersed recreation use occurring on BLM lands, the significance of these impacts are low. It is unlikely that the BLM permitted action of commercial river guiding is increasing incidental catch (and potential mortality) of migratory bull trout in the NFJDR, because bull trout are likely not utilizing this habitat in late spring/early summer.

Potential Effects to Each Habitat Pathway/Indicator

The Level 1 team's assessment is that the proposed actions for 1998 in the NFJDR subbasin (grazing and commercial river guide permitting) should be split into three separate groups of federal actions with separate determinations of effect on each Habitat Pathway/Indicator. Group 1: Grazing allotments with BLM lands adjacent to migratory bull trout habitat on the NFJDR (#4003, 4028, 4029, 4042, 4122, and 4125). Group 2: All other grazing allotments within the analysis area (#4015, 4108, and 4139). Group 3: Commercial river guiding/dispersed recreation on BLM lands within the analysis area. When potential effects are comparably similar for all three federal actions, they are grouped into one discussion for that habitat pathway.

Water Quality

Groups 1 and 2: Water temperatures will not be significantly affected from these actions because the timing of the grazing treatments is when grasses and forbs are more palatable and preferable than woody species, which largely will be ungrazed. Regrowth of riparian vegetation also occurs after the livestock leave the parcel/pasture with stream habitats. Bull trout use habitat downstream of, and adjacent to these allotments (in the NFJDR) area only during winter and spring seasons when water temperatures are within their optimum range. Sediment and chemical contamination/nutrient levels in the analysis area will be maintained at current levels. Fine sediment has a negligible potential to increase from livestock trampling of streambanks. Regrowth of vegetation after the short use period will recover most areas trampled by livestock, thus minimizing areas that could be subject to erosion during winter and spring high flows. No spawning or incubation habitat exists below the project area, so this element would not be affected. Instream nutrient levels in the analysis area may experience minor increases in the short term from livestock wastes. Water flows are high during this season so the dilution factor would mitigate the effects of nutrient additions. No effect is anticipated from chemical contaminants.

Group 3: Dispersed recreation/camping use in the analysis area is low on BLM lands. Although some vegetation trampling does occur in riparian/floodplain areas from camping activities, effects to woody vegetation is predicted to be immeasurable, and not likely to effect stream shading and water temperatures. Suitable camping sites often are located on river terraces, outside of the riparian area. Fine sediment delivery to the NFJDR is not expected to increase because of the low amount of camping activity within riparian zones. The BLM has been informing boaters and campers to pack out human

wastes, but this is not an official regulation for the NFJDR. This outreach effort should minimize nutrient contamination to the river from people.

Habitat Access

All Action Groups: There will be no effect on the species ability to access habitats upstream and downstream of the analysis area.

Habitat Elements

Groups 1 and 2: No rearing areas exist below the project area. Slight increases in sedimentation from grazing activities could affect the forage base of migrating bull trout in the NFJDR, but this effect would be immeasurable, and not significant enough to increase cobble embeddedness. This project will maintain current and future floodplain woody debris in the area. Spring grazing activities are not likely to affect woody species that could become future large instream wood debris. Pool frequency and quality will not be affected measurably because of the reasons discussed about substrate embeddedness. Large pools, off channel habitat, and refugia in the NFJDR below the analysis area would not be affected significantly from grazing actions that only last 2 months each year on the NFJDR.

Group 3: No effect to cobble embeddedness in rearing areas would occur from dispersed recreation activities, for no rearing habitat is present within or downstream of the analysis area. The BLM allows collection of reasonable amounts of wood for campfires on public lands. This may impact future large woody materials within RHCA's, but is not expected to be significant because of the low levels of use along the NFJDR and the relatively small amounts of public lands along the NFJDR.

Channel Condition & Dynamics

Groups 1 and 2: Minimal or immeasurable effect to width/depth ratio or floodplain connectivity is expected in the area or to downstream occupied habitats. Short season of grazing use minimizes impacts to these parameters. Grazing activities and animal trampling may degrade streambank conditions slightly on the NFJDR and tributary streams, but should not be a measurable impact to occupied habitats.

Group 3: Minimal or unmeasurable effect to width/depth ratio or floodplain connectivity is expected along the NFJDR from dispersed camping uses. Use levels are low along the NFJDR canyon. Camping/floating activities may damage streambank conditions in scattered locations, but not at levels significant enough to cause measurable changes in habitat in the NFJDR.

Flow/Hydrology

All Action Groups: These actions are not likely to effect changes in peak base flows or lead to increases in drainage networks within the analysis area. This indicator is primarily affected by timber harvest activities which alter snow retention and snowmelt

timing. These activities cover a very small portion of the analysis area, and occur for short time periods, thus minimizing impacts to ground cover vegetation which maintains watershed hydrological functions.

Watershed Conditions

Groups 1 and 2: This action will not effect road densities, or percent ECA, for no road building, or timber harvest is proposed in the analysis area. Conditions of RHCA's should be maintained, for reasons discussed under "Analysis of Potential Effects of the Proposed Action". Woody riparian species should experience near natural rates of recovery with spring grazing treatments. Disturbance related to this action are temporary (removal of streamside vegetation) with nearly full regrowth anticipated by the end of the growing season.

Group 3: This action will not effect road densities, or percent ECA, for no road building, or timber harvest is proposed in the analysis area. Vegetation condition of RHCA's could be impacted slightly from camping activities. The BLM allows collection of reasonable amounts of wood for campfires on public lands. This may impact future large woody materials within RHCA's, but is not expected to be significant because of the low levels of use along the NFJDR and the relatively small amounts of public lands along the NFJDR.

Integration of Species and Habitat Conditions

All Action Groups: These actions will not affect habitat connectivity among subpopulations of the North Fork, Middle Fork, and main stem John Day. The primary factor that currently limits connectivity of these subpopulations is degraded habitat conditions upstream and downstream of the analysis area.

Determination of Effects: Dichotomous Key for Making ESA Determination of Effects

Groups 1 and 2:

1. Are there any proposed/listed fish species and/or proposed/designated critical habitat in the watershed or downstream from the watershed?

YES.....Go To 2

2. Will the proposed action(s) have any effect whatsoever on the species and/or critical habitat?

YES.....Go To 3

3. Will the proposed action(s) have the potential to hinder attainment of relevant

"function"

NO.....Go To 4

4. Does the proposed action(s) have the potential to result in "take" of any proposed/listed fish species or destruction/adverse modification of proposed/designated critical habitat?.

A. There is a negligible (extremely low) probability of take of proposed/listed fish species or destruction/adverse modification of proposed/designated critical habitat.

.....Not Likely to Adversely Affect

Group 3:

1. Are there any proposed/listed fish species and/or proposed/designated critical habitat in the watershed or downstream from the watershed?

YES.....Go To 2

2. Will the proposed action(s) have any effect whatsoever on the species and/or critical habitat?

YES.....Go To 3

3. Will the proposed action(s) have the potential to hinder attainment of relevant

"function"

NO.....Go To 4

4. Does the proposed action(s) have the potential to result in "take" of any proposed/listed fish species or destruction/adverse modification of proposed/designated critical habitat?.

A. There is a negligible (extremely low) probability of take of proposed/listed fish species or destruction/adverse modification of proposed/designated critical habitat.

.....Not likely to Adversely Affect

Discussion: The environmental baseline description in the preceding matrix shows that the BLM is a relatively small landowner in the NFJDR basin and that data concerning habitat conditions for the private and BLM lands in the analysis area generally is lacking. The matrix also shows that riparian and aquatic conditions on BLM lands will be maintained with implementation of these actions, as authorized. Riparian management objectives outlined in the John Day RMP should be maintained with this project as well as the pathway indicators listed in the matrix. These objectives will be met by limiting grazing activities in allotments with riparian areas to short spring treatments, which allows for vegetative regrowth. Scheduled compliance monitoring will serve to track the success of meeting riparian objectives in combination with intensive grazing treatments.

The Level 1 team's assessment is that the proposed actions for 1998 in the NFJDR subbasin (grazing and commercial river guide permitting) should be split into three separate groups with separate determinations of effect. Group 1 includes grazing allotments with BLM lands adjacent to migratory bull trout habitat on the NFJDR (#4003, 4028, 4029, 4042, 4122, and 4125). It was determined by the level 1 streamlining team that Group 1 actions were "Not Likely to Adversely Affect" the species, as authorized. Group 2 includes all other grazing allotments within the analysis area (#4015, 4108, and 4139). Group 3 includes commercial river guiding/dispersed recreation on BLM lands within the analysis area. It was determined that Groups 2 and 3 actions may affect, but are not likely to adversely affect the bull trout or its habitat. Two allotments in Group 2 were determined to have no effect to downstream bull trout habitats (See Table 1). These allotments are upland, 40 acre parcels, with no perennial or intermittent streams.

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Table 1.

RANGE MANAGEMENT PERMITTED ACTIONS: 1998 ONGOING
 NORTH FORK JOHN DAY SUBBASIN - HUC # 17070202
 PRINEVILLE DISTRICT BLM

Allotment Name	BLM Acres	Season of Use ¹	Permitted AUM's	Occupied Habitat ²	300' FB Stream ²	150' N-FB Stream ²	100' Inter. Stream ²	Effects Determined ³
Slicear Mountain #4003	1,640	4/1-5/31	268	3.8	3.8	0.5	2.4	LAA
Big Wall #4008	40	4/1-7/1	4	0.0	0.0	0.0	0.0	NE
Mud Springs #4015	240	4/1-5/31	30	0.0	0.2	0.0	0.3	NLAA
Neal Butte #4028	466	4/1-5/31	100	2.2	2.2	0.0	0.7	LAA
North Fork #4029	1,894	4/1-5/31	316	4.8	5.75	0.0	1.6	LAA
Johnny Cake Mtn. #4042	280	4/1-5/31	30	0.8	1.2	0.0	0.6	LAA
Wrightman Canyon #4054	40	4/1-11/30	6	0.0	0.0	0.0	0.0	NE
Little Wall Creek #4108	320	4/1-5/31	53	0.0	0.7	0.0	0.3	NLAA
Big Bend #4122	280	4/1-5/31	24	0.5	0.5	0.0	1.0	LAA
Umatilla # 4125	679	4/1-5/31	113	0.9	0.9	0.0	1.2	LAA
Bone Yard #4139	1,520	5/1-11/30	148	0.0	0.0	0.0	4.0	NLAA

Footnotes:

1 All allotments are cattle operations

2 Miles of Stream on Public Lands, FB = fish bearing stream, N-FB = non-fish bearing stream, Inter. Stream = intermittent stream

3 NE = no effect to bull trout or habitat, NLAA = not likely to adversely affect bull trout or habitat, LAA = likely to adversely affect bull trout or habitat

Table 2. DISTANCE TO OCCUPIED BULL TROUT HABITAT IN THE NORTH FORK JOHN DAY RIVER AND NOALE STATUS

Allotment Name	Riverine Miles to Occupied Bull Trout Habitat	NOALE Disposal or Retention Parcels in Allotment
Slickear Mountain #4003	Adjacent	Retention
Big Wall #4008	8	Disposal
Mud Springs #4015	3	Retention and Disposal
Neal Butte #4028	Adjacent	Retention
North Fork #4029	Adjacent	Retention
Johnny Cake Mtn. #4042	Adjacent	Retention
Wrightman Canyon #4054	2	Disposal
Little Wall Creek #4108	9	Retention
Big Bend #4122	Adjacent	Retention
Umatilla # 4125	Adjacent	Retention and Disposal
Bone Yard #4139	3-8	Retention